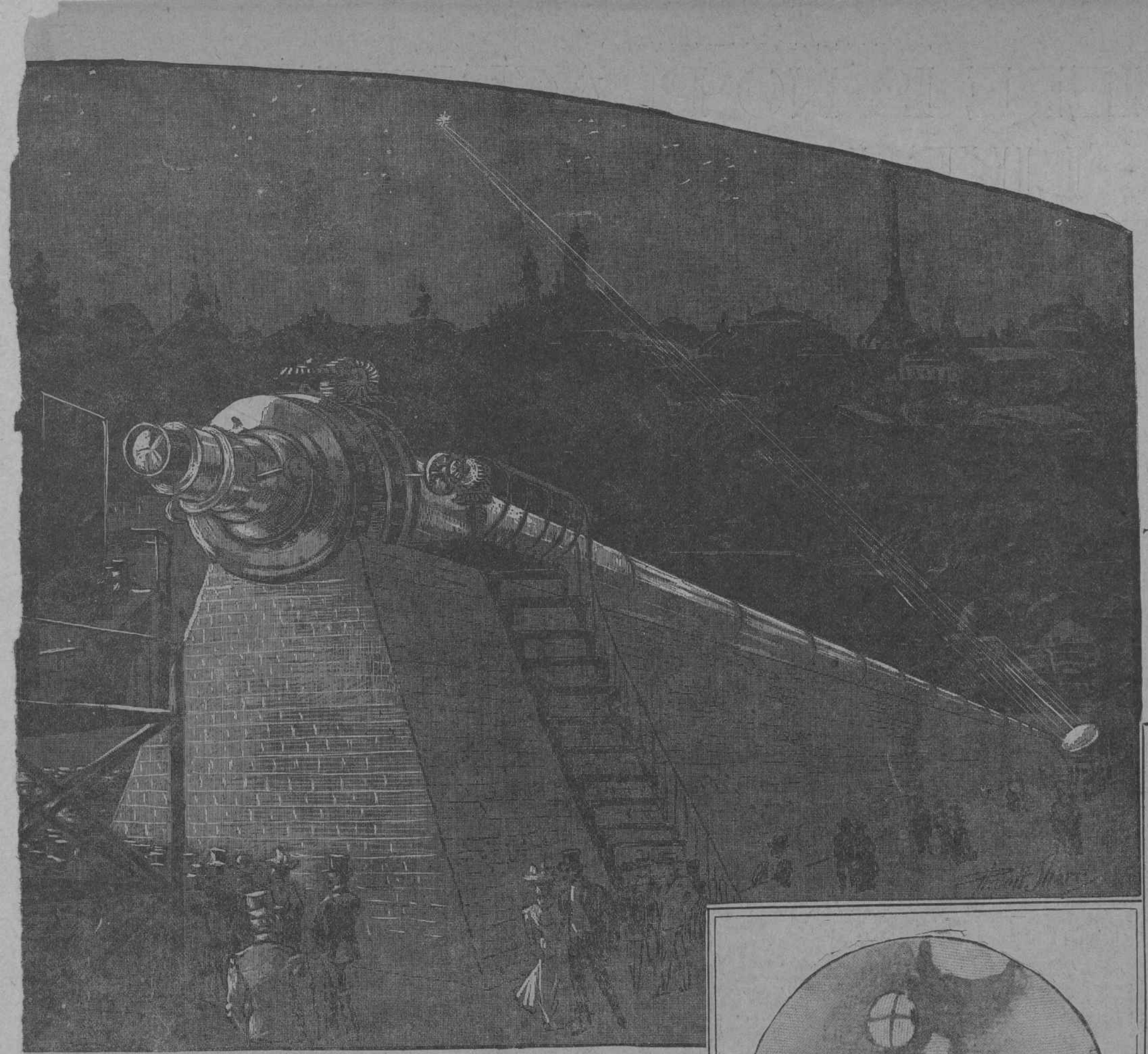
The Great Surprise France Is Quietly Preparing for the Exposition Next Year.

The New Telescope Will Have an Object Glass 4 Feet 1 1-4 Inches in Diameter---Almost 6 Inches Larger Than Any Other in Existence.



Telescope, with Its Huge Astronomic Eye, On Its Stone Foundation.

an a century ago, when long- elescopes (but with small ob- sses) were used. the new long-focus telescope at Paris provided with an object glass of unexampled size and power, it is quite possible that we shall see things on Venus not yet dreamed of, and shall be able once for all to settle the questions of the possibility of people dwelling in that world of perpetual Summer.

Without any exaggeration I think that the Deloncle telescope gives the best promise we have yet had for the successful study of the planets Venus, Mars, Jupiter and Saturn, on account as much of its great focal length as of the size of its object-glass.

In the moon, too, interesting discoveries are possible with the new telescope.

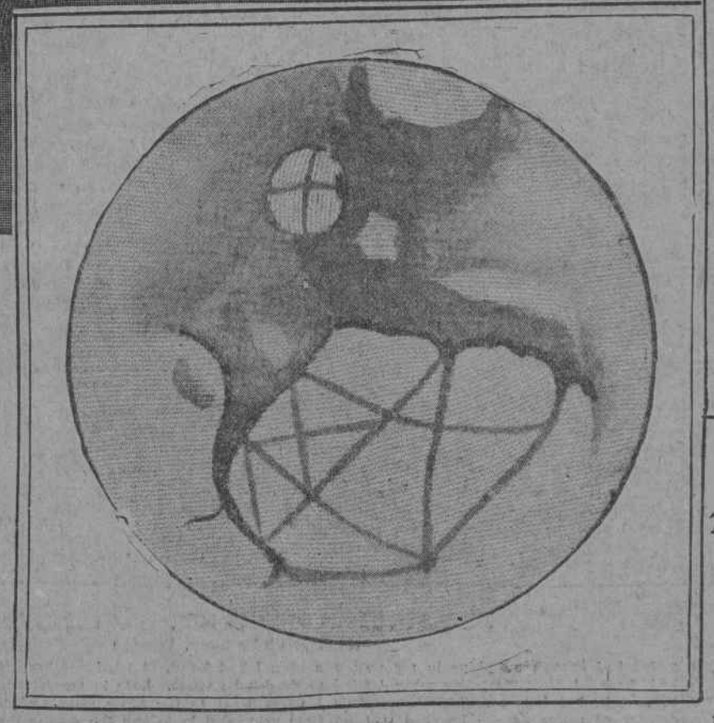
Without pressing its powers to the extreme, it ought, in a fair condition of the atmosphere, to bear a magnifying power of 1,000, and occasionally of 2,000 in studying the moon as easily as the largest of existing telescopes bears powers one-half as great, and thus should enable us to see the lunar landscapes and the wonders of "lunar geology" from a point of view apparently twice as near as we have hitherto approached.

t Their Guns by Electricity.

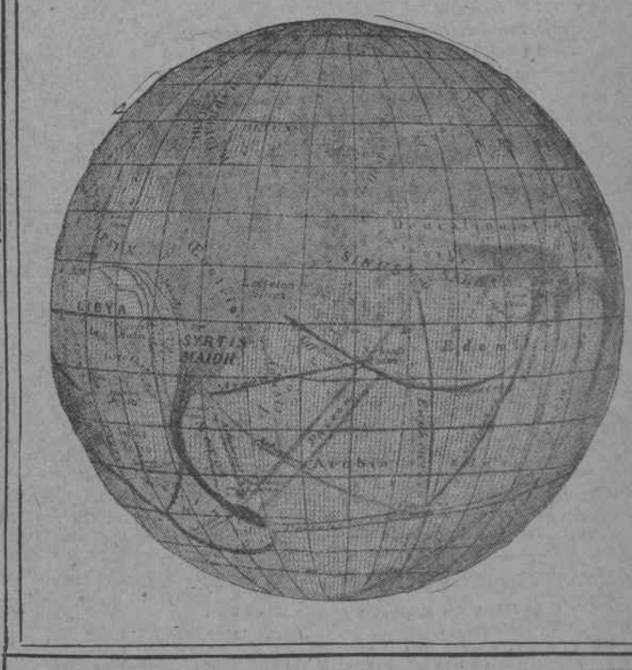
mitter at the words "commence The little disk on every indicator hip indicating the order "Com- ing" is immediately illuminated, rder has been conveyed. ishes to send word to the Second to fire shrapnel the captain he key for the Second Division, the key for the shrapnel," and the er is then conveyed. This gives f the transmitter and the indi- e old regime the captain took the bridge or in the conning was easy for him to give and order "commence firing," but orders were not so easy of in the noise and smoke and uttle. The orders were either sent by messenger or by passing the word from one deck to another or by the display of flag signals.

In the heat of battle some of these orders are never delivered or else produce confusion and delay. The present plan will work without danger of misunderstanding or delay until perchance the transmitter or the captain has been shot away.

The only thing approaching the delivery of orders in this way was on the Brooklyn during the Santiago fight. The Brooklyn was equipped with a dial like a transmitter, which, however, could send only orders relating to the range of the guns. It could direct the gunners to fire at such and such an elevation, and the elevations were noted on an instrument similar to the indicator.



All that Science Has Yet Discovered on Mars



Antoniardi's Elaborated Map of Mars.

The Moon Will Throw Upon the Focus an Image 23 5-8 Inches in Diameter—Up to the Present the Focal Image Has Been Magnified Only 4,000 Times—In the Big Telescope of 1900 It Will Be Magnified 6,000 Times. Under Some Circumstances 10,000 Times!

Hundreds of Spectators at Once Will Be Enabled to Observe Celestial Phenomena—The Total Cost of the Telescope Will Be Not Less Than $280,000.

n Western Africa to Blot Out Malaria from the Face of the Earth.

med "The White Man's t coast of Africa, more than of the world, malaria flour- he fashion to call it mias- jungle fever, swamp fever, anything, in short, but what who commands the expedi- pan who has laid down the there were no mosquitoes probably there would be no is because malaria is microbe which is carried rson to person by the mos- r words, malaria is practi- disease in that mosquitoes microbes from the blood of then fly off and inoculate other persons with those germs. In addition to this there is, in the bite of a mosquito, yet another danger. The experiments and investigations of Dr. Manson have proved that mosquitoes frequently transmit a parasite known as Filaria Sanguinis Hominis (the thread-worm of the blood of man).

This parasite inhabits the lymphatic glands of man and is the cause of that curious disease called elephantiasis. The natives around Sierra Leone suffer much from this complaint, which is incurable.

The malaria germ feeds on the contents of the red corpuscle in the human blood. It eats its way into the corpuscle and there proceeds to grow. After a time it becomes crescent-shaped, and then, if it is examined under a microscope, it can be seen that the hollow skin of what was once the red corpuscle, is draped, like a triumphal cloak, across the bulging body of the malaria microbe.

When the blood of a person who has died of malaria is examined it is found to be almost devoid of red corpuscles. Malaria, in fact, is the virtual death of the blood.

Opinions differ as to whether mosquitoes are born with malaria or whether they get it after having bitten a person affected with the disease. This is one of the questions which the expedition to West Africa expects to clear up. Major Ross, who, by the way, is a noted bacteriologist, has established the fact that the microbe of malaria can, if it has to, project what are virtually legs and use them for moving about. He argues that the microbe of malaria would not be furnished with those legs if it were not often obliged to live a life outside either human beings or mosquitoes. Moreover, the microbe has been found plentifully in water.

Now, the mosquito is distinctly a water insect. The male mosquito, indeed, seldom leaves the vicinity of water. He can be distinguished by his bushy head and the entire absence of the barbed dart with which his partner sucks blood. The male mosquito, in fact, is a harmless insect. It is only the female mosquito which sucks human blood.

When the mosquito has got her fill of blood—for scientists say that she only takes one full meal in the course of her life—she makes her way to the water and there, resting on a convenient bit of grass, she crosses her last pair of legs and proceeds to lay eggs in the fork made by her legs.

The eggs are sticky and hang together. When she has laid about twenty-five the mosquito lets them down gently into the water and then proceeds to stick other eggs around this nucleus until she has constructed a little hollowed boat of eggs, containing about 300 embryo mosquitoes. Having completed her little boat of eggs the mosquito retires inland and dies.

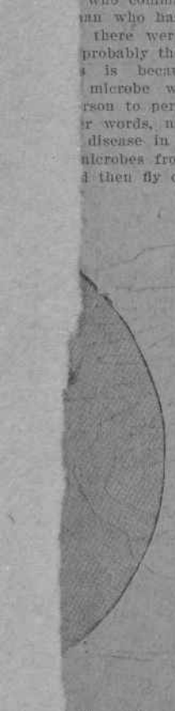
The raft of eggs which she left behind her floats about at the mercy of wind and sun for a few days. Then, if no prowling fish has devoured it, the lower ends of the eggs' shells are forced off and there drop into the water a number of little, brown, wriggling grubs.

These grubs do not resemble mosquitoes very much, but they are exceedingly curious things. Though living in water they inhale air through a little tube in their tails. The grub, accordingly, has to stand on his head to breathe, and, in fact, passes most of this part of his existence in this position. By means of a very excellent pair of biting jaws he feeds, meanwhile, on such rubbish and decaying matter as is suspended in the water.

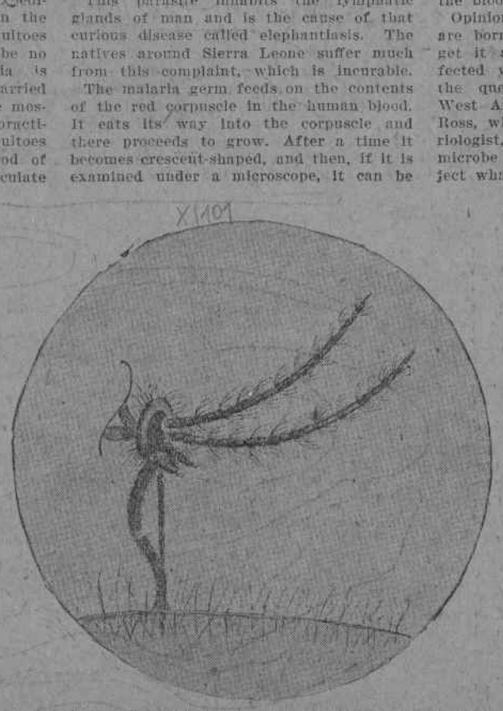
It lives as a grub for a few weeks and then becomes a queer, swimming chrysalis, looking something like a miniature sea-cow. During this part of its existence it eats nothing at all.

At last there comes a day when the chrysalis rises to the top of the water and splits itself down the back. From the split there emerges slowly, painfully and very limply, the perfect mosquito. It is a mosquito "with the starch out," however, and it has to balance itself on the floating remains of its chrysalis until the sun stiffens its wings. When this has been done it is ready to fly away and to drink human blood, if it happens to be a female mosquito.

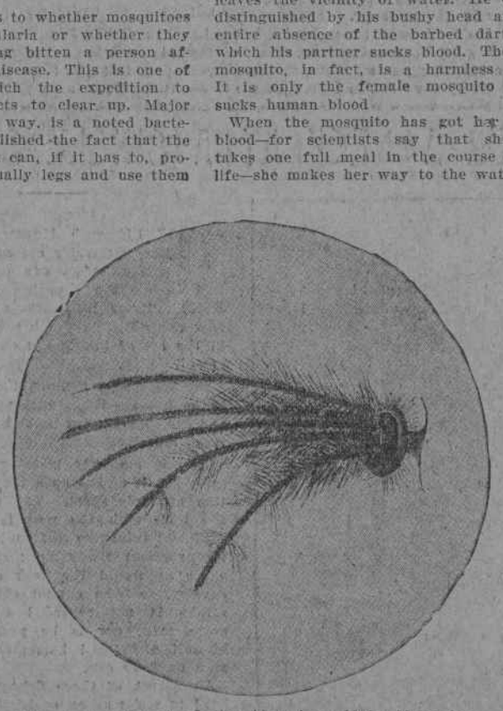
Major Ross, as has been said, has established the fact that there are malaria germs in water in which mosquito grubs live. It therefore follows, he thinks, that the grubs are full of the same microbe, that the chrysalis also contains them, and that they are abundantly present in the perfect insect. These are injected into the blood by the insect's bite.



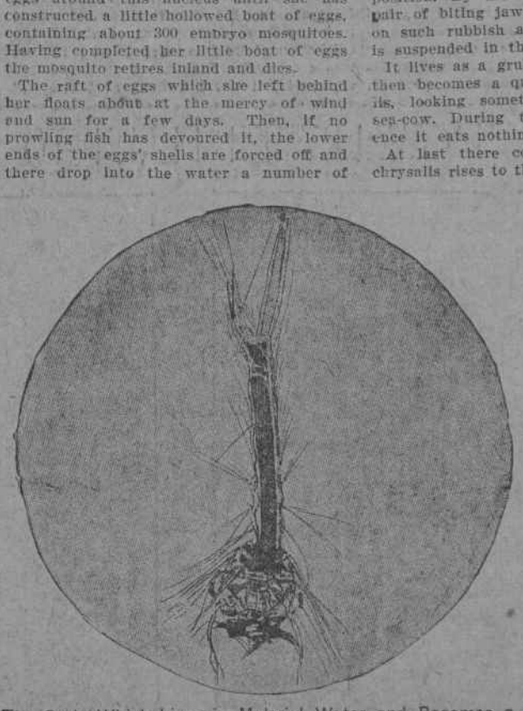
Mosquito. lse.



This Is the Way a Mosquito Sucks Blood from the Hand. The Lancet Sheath Bends Up.



This Is the Beard of the Harmless Male Mosquito. He Cannot Bite.



The Grub, Which Lives in Malarial Water and Becomes a Mosquito.

How a Mosquito Chrysalis Looks Before It Grows Its Wings.